

GZYRYAN, M.S.

Method for anatomical study of leaves in dicotyledonous
plants. Trudy Inst.bot.AN Azerb.SSR 21:159-165 '59.
(MIRA 13:3)

(Leaves--Anatomy)

GZYRYAN, M.S.

Comparative ecologico-anatomical characteristics of wood
and leaves of some trees grown in the parks of Azerbaijan.
Trudy Inst.bot.AN Azerb.SSR 21:135-158 '59. (MIRA 13:3)
(Azerbaijan--Trees) (Wood--Anatomy) (Leaves--Anatomy)

ARTYUSHENKO, Z.T.; VASIL'YEV, I.V.; ~~GZYRYAN, M.S.~~; GOLOVACH, A.G.; GRUBOV, V.I.; ZAMYATNIN, B.N.; PIDOTTI, O.A.; PILIPENKO, F.S.; POLETIKO, O.M., kand.biolog.nauk; RODIONENKO, G.I.; RUSANOV, F.N.; SAAKOV, S.G.; SOKOLOV, S.Ya., prof., doktor biolog.nauk, red.; FEDOROV, A.I.A.; SHIPCHINSKIY, N.V. [deceased]; SHUL'GINA, V.V.; SHUKHOBODSKIY, B.A.; GOLOVNIN, M.I., red. izd-va; KRUGLIKOVA, N.A., tekhn.red.

[Trees and shrubs of the U.S.S.R.; wild, cultivated, and promising exotic trees and shrubs] Derev'ia i kustarniki SSSR; dikorastushchie, kul'tiviruemye i perspektivnye dlia introduktsii. Moskva. [Vol.4. Angiosperms: Leguminosae - Punicaceae] Pokrytosemennye: Semeistva bobovye-granatovye. 1968. 973 p. (MIRA 11:12)

1. AN SSSR. Botanicheskiy institut.
(Angiosperms) (Trees) (Shrubs)

GZYRYAN, Mariya.

Intra-family interrelations in the willow family (Salicaceae).
Dokl. AN SSSR 105 no.4:832-834 D '55. (MLRA 9:3)

1. Botanicheskiy institut Akademii nauk ArmSSR. Prestavleno
akademikom V.N. Sukachevym.
(Willows)

GZYRYAN, M.S.,

YATSENKO-KHMELEVSKIY, A.A.; VIKHROVA, V.Ye.; ~~GZYRYAN, M.S.~~; MOSKALEVA,
V.Ye.; TAKHTADZHYAN, A.L., otvetstvennyy redaktor; SUVOROVA, L.D.,
tekhnicheskiy redaktor.

[Principles and methods of investigating the structure of wood]
Osnovy i metody anatomicheskogo issledovaniia drevesiny. Moskva,
Izd-vo Akademii nauk SSSR, 1954. 337 p. [Microfilm] (MIRA 8:2)
(Wood)

GZYRYAN, Mariya. S.

Structure of the wood and bark of the apricot tree; materials for the anatomical and physiological study of the fruit trees of Armenia. Izv. An Arm. SSR. Biol. i sel'khoz. nauki. 5 no.8:71-82 '52.

1. Institut plodovodstva Akademii nauk Armyanskoy SSR.
(Armenia--Apricot) (Wood) (Bark)

62714-65
ACCESSION NR: AP5011791

a description of the design of tubular shunts for measuring steep pulse currents, their properties, and methods for testing them. The experimental data show that pulse generators even of a power of about 2 kw are suitable for plastic metal forming on a commercial scale, but that good pulse capacitors and trigger spark-gaps must be designed, and that other problems must be solved before the generators can be used commercially. Orig. art. has: 6 formulas, 13 figures, and 1 table.

ASSOCIATION: Gzylowski, Las, Malewski - Zaklad Wysokich Napiec IEI (Department of High Voltage, IEI) Bednarski - Zaklad Technologii Mechanicznej Ogolnej Pol. Waznawskiej (Department for Technology of General Mechanics, Warsaw Polytechnic Institute)

SUBMITTED: 00

ENGL: 00

SUB CODN: MM, EE

NR REF SOV: 003

OTHER: 00

Card 2/2

1 (2711-65 EWP(a)/EWP(b)/EWA(c)/EWP(b)/EWA(d)/EWP(e) IJP(a) JP/HN
ACCESSION NR: AP50 1791 FO/0021/65/000/004/0121/0125 34

AUTHOR: Gzylawski, J. (Master engineer); Lab, T. (Master engineer); Malawski, R. (Master engineer); Redharaki, T. (Master engineer) 5544

TITLE: Application of steep pulse currents to hydrodynamic and magnetic forming of metals

SOURCE: Przegląd elektrotechniczny, no. 4, 1965, 121-125

TOPIC TAGS: aluminum sheet forming, silicon sheet forming, transformer metal, magnetic metal forming, hydrodynamic metal forming, metal forming 55

ABSTRACT: This article presents the experimental results from the first series of studies of hydrodynamic and magnetic metal forming. The authors describe the circuits and parameters of pulse current generators, as well as the properties of such circuit elements as capacitors, trigger and working spark-gaps, and operating coils. The conditions for generating shock waves in water with the aid of an electric discharge and the use of exploding wire are given, as are the current curves and calculations of the power and energy dissipated in the circuit. The results of the forming of aluminum and silicon transformer sheets are also given. Included is

Card 1/2

COUNTRY : POLAND H
 CATEGORY : Chemical Technology. Chemical Products and Their
 Applications. Cellulose and Its Derivatives. Paper
 ABS. JOUR. : RZhKhim., No 17, 1959, No. 63076
 AUTHOR : Gzylowski, J.; Winczakiewicz, A.
 INSTITUTE : -
 TITLE : Electrotechnical Prossapahn
 ORIG. PUB. : Przegl. papiern., 1959, 15, Nol, 12-16

ABSTRACT Presented are requirements for electrochemical Prossapahn (mechanical, physical, chemical, and electrical properties.). Characteristics of Prossapahn made in the GDR, Sweden and Switzerland are compared. Described is the present-day condition of Prossapahn production in the Polish Democratic Republic.
 From the author's resume.

Card:

H - 153

GZYLEWSKI J.

621.315.614.64 : 621.314.2.048

✓4117. On the impregnation with oil-resistant glyptal lacquers of transformer insulation paper. H. LATOUR AND J. GZYLEWSKI. *Przegląd elektro-tech.*, 31, No. 2-3, 172-7 (1955) in Polish.

Deals with the methods of impregnating windings with glyptal lacquers and the criteria to be observed in determining the parameters of impregnating processes. The structure of oil-resistant glyptal lacquers is reviewed in more detail. The procedure in impregnating paper in vacuum and at atmospheric pressure with lacquers, particularly with Polish-made glyptal lacquer, is reviewed. The results of testing the properties of test samples so impregnated are given.

M. W. MAKOWSKI

MT
2 May
MA BE

①

Gzylowski, J.

621.316.028.3 : 621.3.011.5
 1734. THE INFLUENCE OF CHANGES IN THE PERMIT-
 TIVITY ON THE ELECTRIC FIELD DISTRIBUTION IN CON-
 DENSER BUSHINGS. J. Gzylowski.

Arch. elektrotech. (WARSAW), Vol. 4, No. 2, 365-77 (1958).
 In Polish with summary (2 pp.) in English.

The author assumes that the thermal gradient resulting in condenser bushings with large current in the inner conduct- or produces large changes of permittivity ϵ in a radial di- rection. The original field distribution, where permittivity was constant, is distorted, which may cause the reduction of flashover voltage at mains frequency. The erosion may be also speeded up. As an example, the results of axial field measurement on a condenser bushing (40 kV, 750 A) are given and also the flashover voltage for 900 A and the bushing un- loaded; under loaded conditions the voltage was reduced by 10%. A tentative theoretical solution of the influence of ϵ on field distribution is suggested. Some assumptions in it need experimental confirmation.

M.W. Makowski

GZYLEWSKI J.

621.313.177
2718. Hot line work on high-voltage overhead lines.
B. GIERMAN, J. GZYLEWSKI, J. KRAWCZAK, A. M.
TULKO AND A. POMIANOWSKI. *Energetyka* (Katowice)
8, No. 1, 26-31 (1954) In Polish.

Equipment and methods for replacement of phase
conductors, overhead ground wires, insulator strings,
and structures are described for lines up to 110 kV.
As an alternative to the hot-stick method, linemen
work at line potential while standing on a mobile
insulating platform. No current can flow through a
function as a jumper is installed between the con-
ductor and a metal mat on which he stands. Work is
on a phase, while others are energized. Work is
is treated as hot-line work at a lower potential unless
this platform adequately multiplies the potential.

J. LUKASZEWICZ

GZYLSKI, J.

Electrical Engineering Abst.
Vol. 57 No. 675
Mar. 1954
Electrical Engineering

621.315.17.004.5

924. [Maintenance] work on energized h.v. overhead transmission lines. 1. Testing of insulation. B. GLIKSMAN, J. GZYLSKI, J. KRAWIEC, A. MATULKO AND A. POMIANOWSKI. *Energetyka*, 7, No. 6, 272-7 (1953) In Polish.

A description is given of a few practical methods and apparatus used on power transmission lines, operating at voltages up to 110 kV for testing suspension and pin-type insulators, measuring the contact resistance of conductor joints and cleaning the insulators with chemical solvents. F. M. DEMBINSKI

621.315.626.3
2159. Design and testing of condenser type bushings.
J. GRYLWSKI. *Przegl. Elektrotech.*, 26, 454-61
(Nov., 1950) in Polish.
Condenser bushings for 220 kV power trans.

Design of new bushings for 220 kV power transformers is expected to present various problems. Service requirements and principles of design of condenser bushings are reviewed together with standard laboratory methods of testing.

J. LUKASZEWICZ

ASME-51A METALLURGICAL LITERATURE CLASSIFICATION

KATSYUBA, K.A.; GZULYA, F.I.

Hepato-cerebral dystrophy in children. Zhnev. Kozakh. 23 no.4:
61-64 '63. (MIRA 17:5)

1. Iz nevrologicheskogo otdeleniya i datskoy klinicheskoy bol'nitsy
i kafedry patologicheskoy anatomii Alma-Atinskogo medicinskogo
instituta.

IBRAYEV, Sh.Z., kand.med.nauk; GZULYA, F.I.

Case of cirrhosis of the liver in an infant. Zdrav. kazakh.
21 no.12:55-57 '61. (MIRA 15:3)

1. Iz kafedr detskikh bolezney i patologicheskoy anatomii
Kazakhskogo meditsinskogo instituta.
(LIVER—CIRRHOSIS)

IBRAYEV, Sh.Z., kand.med,nauk; GZULYA, F.I.

Case of typhoid fever in a child of 4 months. Zdrav. Kazakh. 21
no. 4:79-81 '61. (MIRA 14:4)

1. Iz kafedr detskikh bolezney i patologicheskoy anatomii Kazakhskogo
meditsinskogo instituta.
(TYPHOID FEVER)

SHAKIMOVA, B.Sh.; GZULYA, F.I.

Itsenko-Cushing disease with pluriglandular insufficiency. Zdrav.
Kazakh. 21 no.2:28-32 '61. (MIRA 14:3)

1. Iz kafedry gosptal'noy terapii (zav. - dotsent R.A.Satpayeva)
i kafedry patologicheskoy anatomii (zav. - professor P.P.Ochkur)
Kazakhskogo meditsinskogo instituta.
(CUSHING SYNDROME) (DEFICIENCY DISEASES)
(ENDOCRINE GLANDS)

GZULYA, F.I., aspirant

Pathomorphology and pathogenesis of grave forms of Botkin's disease. Zdrav.Kazakh. 17 no.10/11:77-79 '57. (MIRA 12:6)

1. Iz kafedry patologicheskoy anatomii Kazakhskogo gosudarstvennogo instituta.
(HEPATITIS, INFECTIOUS) (ALCOHOL--PHYSIOLOGICAL EFFECT)

TERLECKI, Jozef, dr. inz.; FIGWER, Jan, mgr. inz.; GZOWSKI, Olgierd, dr.

A fire alarm system based on radioactive isotopes. Bud okretowe
Warszawa 7 no.7:228-231 J1 '62.

1. Politechnika, Gdansk.

GZPFGDALA, J.

Execution of the Plan in most important technical and economic fields in the 1st half of 1953. p. 424.

SO: Monthly List of East European Accessions, (SEAL), IC, Vol. 3, No. 12, Dec. 1954, Uncl.

GZOWSKI, J.

Complaints and grievances. p. 3.

ROLNIK SPOKDZIELCA. (Centrala Rolniczej Spolkzielni "Samopomoc Chlopska")
Warszawa, Poland. Vol. 8, no. 43, Oct. 1955.

Monthly list of East European Accessions (EEAI) IC, VOL. 9, no. 2, Feb. 1960

Uncl.

/ A method for measuring the mobility of ions in dielectric liquids. Olgierd Gzowski and Jozef Terlecki (Gdansk Eng. Coll., Gdansk, Poland). *Acta Phys. Polon.* 18, 191-8 (1959)(In English); cf. CA 52, 8887¹.—A method is described for measuring mobility of current carriers in dielectric liquids. A plane of ions is produced in the liquid by x-rays. A voltage is applied to 2 electrodes in the liquid. Oscillograms record the voltage-time curve across a condenser in series with the cell, and from this, the time for ions to move to the electrode is detd. The mobility μ is calcd. from the relation; $v = \mu(V/d)$, where v is the velocity, V the voltage across the cell, and d the distance between the electrodes. For hexane, the measured mobilities are: $\mu_+ = 4.1 \times 10^{-4}$ sq. cm./v.-sec. and $\mu_- = 1.3 \times 10^{-4}$ sq. cm./v.-sec.

R. D. Gillman

KARASEV, I. N., Inzh., GZOVSKIY, S. Ya., doktor tekhn. nauk

Calculation of the power of anchor and radial paddle type
agitators. Khim. i nefte. mashinostr. no. 6:16-20 P. 181
(MIRA 18:2)

DIN VEY [Ting Wei]; GZOVSKIY, S.Ya.; PLANOVSKIY, A.N.

Study of the kinetics of solution during mixing by mechanical mixers. Khim. prom. no.4:286-292 Ap '63. (MIRA 16:8)

GZOVSKIY, S.Ya., kand.tekhn.nauk

Hydrodynamics of the flowing stream during the mixing of
liquids by radial flow paddle impellers. Khim.mash. no.1:
17-20 Ja '60. (MIRA 13:5)
(Mixing) (Hydrodynamics)

GZOVSKIY, S. Ya., dots.

Determining stresses and angles of arrangement of driving and
supporting guiding rollers of ball mills having friction drives.

Trudy MIKHM 14:3-18 '57.

(MIRA 11:9)

(Crushing machinery)

GZOVSKIY, S.Ya.; PLANOVSKIY, A.N.

Investigating mass transfer in the solution of the solid phase
in a liquid. Khim. prom. no.6:363-365 S '57. (MIRA 11:1)
(Mass transfer) (Solution (Chemistry))

GZOVSKIY, S.Ya., kand. tekhn. nauk

Kinematics of the stream during the mixing of the liquid by
radial blade impellers. Khim. mash. no.6:13-20 N.D. '59.
(MIRA 13:3)

(Mixing) (Hydrodynamics)

BELOUSOV, V.V.; GONCHARY, M.V.

[Experimental tectonics] Eksperimental'naya tektonika.
Moskva, Izd-vo "Nedra," 1964. 117 p. (MLA 17:2)

L 17585-65

ACCESSION NR: AT4049225

spatial distribution of earthquake foci, etc. The uplift rate of the latest movements within the territory of the SSSR is only 0.25 mm/year (as an average over a 30-million year period). The lapse rate distribution of the latest vertical movements in the SSSR as a whole appears to conform to the seismic zoning maps and earthquake epicenter maps compiled by the AN SSSR. The majority of the contemporary abyssal fracture zones are steeply inclined (60-70% and more), extending much deeper than the base of the earth's crust. Inasmuch as the earth's crust is 90% isostatic, it is assumed that the convergence rate of the uplift and subsidence of the earth's crust is at least the same as the highest lapse rate of the movement component. A comparison of tectonic movements with magmatic processes reveals that the relationship between them is paragenetic and not merely causative. The currently known geological and geophysical facts support the hypothesis that the physicochemical transformation of matter in the upper mantle of the earth is the major cause of tectonic movements. The average uplift rate of the earth's crust must be related to the growing crustal thickness produced by the adhesion of increasing quantities of acid igneous rock to the crust. Orig. art. has: 11 numbered formulas, 6 figures and one table.

ASSOCIATION: none

SUBMITTED: 25Mar64

ENCL: 00

SUB CODE: ES

Card 2/2 NO REF SOV: 055

OTHER: 015

L 17585-65 EWT(1)/EWA(h) Feb MLK/GW

ACCESSION NR: AT4049225

S/0000/64/000/000/0058/0077

AUTHOR: Gzovskiy, M. V.

B+/

TITLE: A tectonophysical comparison of recent tectonic movements with the seismicity, gravitational anomalies, magmatism and deep processes within the limits of the USSR

SOURCE: Vsesoyuznoye tektonicheskoye soveshchaniye. 2d, Dushanbe, 1962. Aktivizirovannyye zony zemnoy kory, noveyskiye tektonicheskiye dvizheniya i seysmichnost' (Activated zones of the earth's crust, latest tectonic movements and seismicity); materialy soveshchaniya. Moscow, Izd-vo Nauka, 1964, 58-77

TOPIC TAGS: Neogene-Quaternary movement, tectonophysical movement, isostatic movement, antisisostatic movement, earthquake focus, land uplift rate, earthquake frequency, subcrustal process

ABSTRACT: An attempt has been made to prove that the solution of various engineering problems, such as the prediction of the force and frequency of earthquakes in a particular area, should be based on the physical interpretation of tectonic movements. The following comparisons are discussed in this connection: the direction of the geological movements with the results of abyssal seismic soundings, the vertical and horizontal speeds of such movements, the lapse rate and the

Card 1/2

GZOVSKIY, Mikhail Vladimirovich; BELOUSOV, V.V., otv. red.;
KOLOSHINA, T.V., red. izd-va; ASTAF'YEVA, G.A., tekhn.
red.

[Basic problems in the tectonophysics and tectonics of the
Baydzhansay anticline] Osnovnye voprosy tektonofiziki i tektonika
Baidzhanskaiskogo antiklinorija. Moskva, Izd-vo AN SSSR. Pts. 3-4.
1963. 543 p. (MIRA 16:10)

1. Chlen-korrespondent AN SSSR (for Belousov).
(Karatau--Geology, Structural)

OSOKINA, Doriāna Nikolayevna; OZOVSKIY, M.V., otv. red.;
MILLER, Yu.G., red.; MEDER, V.M., red. izd-va; KYLINA,
Yu.V., tekhn. red.

[Plastic and elastic low-module optically-active materials
for studying stresses in the earth's crust by the modeling
method] Plastichnye i uprugie nizkomodul'nye opticheski-
aktivnye materialy dlia issledovaniia napriazhenii v zem-
noi kore metodom modelirovaniia. Moskva, Izd-vo AN SSSR,
1963. 195 p. (MIRA 17:1)

GZOVSKIY, M.V.

Role of tectonics in the origin of magma of various compositions.
Biol. MOIP. Otd.geol. 37 no.3:122 My-Je '62. (MIRA 15:10)
(Magma)

S/169/63/000/003/033/042
D263/D307

Problems of magmatism ...

ical reactions, proceeding in the subcrustal layer, although in some cases formation and eruption of magma causes corresponding sagging or rise of the Earth's surface. It is concluded that a definite combination of physical and chemical conditions is necessary for the formation of magma; tectonic movements play an important but not a critical part. (99 references).
[Abstracter's note: Complete translation]

S/169/63/000/003/033/042
D263/D307

AUTHOR: Gzovskiy, M.V.
TITLE: Problems of magmatism and tectonic physics
PERIODICAL: Referativnyy zhurnal, Geofizika, no. 3, 1963, 3,
abstract 367 (In collection: Vopr. Vulkanizma, II.,
AN SSSR, 1962, 297-318)

TEXT: A discussion is given of the tectonic conditions of the formation of magma, considering from tectonic data the causes of the change of all-round pressure, examining the combination of magmatism with tectonic movements and estimating the part of the lowering of surrounding pressure during the formation of various magmas. A theoretically derived tectonic equation showed that for most basic magmas the lowering of surrounding pressure is the main factor in their formation while in most cases of acid magmas this factor plays a secondary part. Analysis of existing material indicates a frequent paragenetic connection between tectonic movements and formation of magma. Most tectonic motions are related to deep physical and chem-

Card 1/2

PETRUSHEVSKIY, B. A., geolog; BELOUSOV, V. V., geolog; GZOVSKIY, M. V., geolg;
GORACHEV, A. V., geolog; KIRILLOVA, I. V., geolog; KRESTNIKOV, V. N.,
geolog; RASTVOROVA, V. A., geolog; REZANOV, I. A., geolog; SORSKIY,
A. A., geolog.

Geologic principles of seismic division into districts. Studi
astron seismol 6 no.2:181-186 '61.

1. Institut fiziki Zemli AN SSSR.

GZOVSKIY, M.V.; OSOKINA, D.N.

Model study of rheological processes in solids, with stress
determination by optical polarization. Koll. zhur. 22
no. 5:560-568 S-O '60. (MIRA 13:10)

1. Institut fiziki zemli AN SSSR im. O.Yu.Shmidta.
(Deformations (Mechanics)) (Rheology)

Investigation of the Processes of Plastic Deformation by Means of Ethylcellulose Solutions and Gels and Optical Polarization S/069/60/022/004/004/005/XX
B003/056

the birefringence (Δn) both on the shear stress as also on the deformation rate. The solutions containing dibutylphthalate acquired plastical consistence with an increase in the dibutylphthalate content. The aforementioned dependences are, in this case, not linear but exponential. The coefficient of optical activity V_T ($V_T = \Delta n / \tau$; Δn - amount of the double refraction of light, τ - shear stress) is in the case of 10 to 35% ethylcellulose solutions practically independent of the concentration, and is between $5 \cdot 10^4$ Brewster. V_T decreases with an increasing dibutylphthalate content in the mixture, as well as with decreasing temperature. Among others, a paper by G. V. Vinogradov and V. N. Manin is mentioned. There are 5 figures, 1 table, and 13 references: 11 Soviet, 1 US, and 1 German.

ASSOCIATION: Institut fiziki zemli im. O. Yu. Shmidta Moskva (Institute of Geophysics imeni O. Yu. Shmidt, Moscow)

SUBMITTED: April 19, 1959

Card 3/3

85707

Investigation of the Processes of Plastic Deformation by Means of Ethylcellulose Solutions and Gels and Optical Polarization S/069/60/022/004/004/005/XX
B003/B056

ically shown in Fig. 1 and described in detail in the original paper contains, among other things, a KCP-5²⁸ polariscope (KSP-5), as well as a Berek compensator for measuring the optical effect. The dependence of shear stress on deformation as well as the deformation-kinetic diagrams were ascertained with the help of Pavlov's elastoplastoviscosimeter (Ref. 14). The material used was Soviet ethylcellulose of the type K-290 (K-290) with a molecular weight of $7.7 \cdot 10^4$ and a substitution degree of 46.25%. The viscosity of a 5% alcohol benzene solution was 290 centipoise at 20°C. The ethyl cellulose was used in a dissolved state in benzyl alcohol (of different concentrations) and/or in benzyl alcohol dibutylphthalate mixtures (whose mixing ratio was varied in a 30% concentration). The measured results are shown in the diagrams of Figs. 2-5. The modulus of shear of the ethyl cellulose solutions was between 0.01 and 1 kg/cm^2 , the viscosity between 10^2 and 10^7 poise. Owing to their mechanical properties, the solutions in benzyl alcohol corresponded to highly viscous Newton liquids having a completely linear dependence of

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54400

1274, 1333, 1263

S/069/60/022/004/004/005/XX
B003/B056

AUTHORS:

Osokina, D. N., Gzovskiy, M. V., Vinogradov, G. V., and
Pavlov, V. P.

TITLE:

Investigation of the Processes of Plastic Deformation by
Means of Ethylcellulose Solutions and Gels and Optical
Polarization

PERIODICAL: Kolloidnyy zhurnal, 1960, Vol. 22, No. 4, pp. 434-442

TEXT: The investigations described in the present paper deal with the problem as to whether it is, in principle, possible to study shear stress and rate of deformation in plastically deformable soft bodies by the method of optical polarization. The results obtained may be usefully applied in the mechanics of disperse systems, of tectonic physics, etc. The measurements were carried out in a device designed by V. P. Pavlov (Ref. 13) and constructed by the Institut fiziki Zemli AN SSSR (Institute of Geophysics of the AS USSR), which simultaneously fulfilled the function of a plastoviscosimeter and a dynamooptometer. The device schemat-

Card 1/3

GZOVSKIY, M.V.; KRESTNIKOV, V.N.; LEONOV, N.N.; REZANOV, I.A.; REYSNER, G.I.

Map of recent tectonic movements in Central Asia. Izv. AN SSSR. Ser.
geofiz. no.8:1168-1172 Ag '60. (MIRA 13:8)

1. Akademiya nauk SSSR, Institut fiziki Zemli.
(Soviet Central Asia--Geology, Structural--Maps)

Polymeric Materials With Different Physicomechanical
Characteristics for Stress Investigations by the
Optical Method

09680

S/153/60/003/01/047/058
B011/B005 ✓

SUBMITTED: April 10, 1959

Card 4/4

Polymeric Materials With Different Physicomechanical
Characteristics for Stress Investigations by the
Optical Method

09550
S/153/60/003/01/047/058
B011/B005

obtained by changing the acid - alcohol ratio, adjusting the thermal treatment, and using plasticizers. Previously (Ref 5) the author had produced an optically active, solid, elastic material "epoksiftamal" from the epoxide resin E-40. In the present paper, the amount of hardening agent was reduced to 3-5%. The resin became jellylike but remained brittle. At a content of 2-5% of maleic anhydride and 30% of dibutyl phthalate, an optically active, highly viscous liquid without a noticeable yield point was formed. At 5-22% of dibutyl phthalate, the resin has the maximum shearing stress. By combination of epoxide resin with hardening agent and plasticizer, it is possible to produce optically active substances with manifold physicomechanical properties: from elastic bodies to viscous liquids. There are 1 figure and 5 Soviet references.

ASSOCIATION: Moskovskiy institut khimicheskogo mashinostroyeniya; Kafedra
fizicheskoy khimii
(Moscow Institute for the Construction of Chemical Machines;
Chair of Physical Chemistry)

Card 3/4

Polymeric Materials With Different Physicomechanical
Characteristics for Stress Investigations by the
Optical Method

69680

S/153/60/003/01/047/058
B011/B005

and an excess of diethylene glycol (according to Ref 3). It was proven that the maximum amount of sebacic acid must not exceed that of maleic acid (1:1), or the product would become opaque. Benzoyl peroxide (0.1 - 1%) was added to the mixture. Polymerization was carried out at 20-40°. The polyester - styrene ratio was varied between 2:1 and 500:1. Optically active substances with

$E = 0.2 - 20 \text{ kg/cm}^2$ and a coefficient of optical activity $B_\sigma = 100-1000$ brewster ($10^{-13} \text{ cm}^2/\text{dyn}$) were obtained with styrene at a ratio of sebacic and maleic acid in polyesters of 2:1, and acid : diethylene-glycol of 2:3. Even at a polyester - styrene ratio of 1:500, they remained gelatinous. The figure (p 174) shows that both the modulus E and the optical activity of the polymer considerably increase with increasing styrene content. Modified glyphthal resins are condensation products of polyatomic alcohols (pentaerythrite, glycerin, diethylene glycol) with phthalic and maleic acid (Ref 4). They are called "gliftamal". They are suited for work at room temperature, having $E = 50,000 \text{ kg/cm}^2$ and $B_\sigma = 36$ brewster. Very transparent substances with $\eta = 10^4 - 10^7$ poise, and $B_\sigma = 2 \cdot 10^3$ brewster can be

Card 2/4

53830

09680

AUTHORS:

Shchegolevskaya, N. A., Osokina, D. N.,
Gzovskiy, M. V., Sokolov, S. I.

S/153/60/003/01/047/059
B011/B005

TITLE:

Polymeric Materials With Different Physicomechanical Characteristics
for Stress Investigations by the Optical Method

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya
tekhnologiya, 1960, Vol 3, Nr 1, pp 172-175 (USSR)

TEXT: The authors proved the possibility of producing photoelastic substances with high optical activity and a wide range of elasticity moduli (up to gel-like substances of the gelatin-jelly type). These substances are produced on the basis of copolymers of unsaturated polyesters, of styrene, and of glyphthal and epoxide resins. These materials had manifold, given physicomechanical properties. The authors paid special attention to the production of plastics with a viscosity (η) of $10^4 - 10^7$ poise, an elasticity modulus $E = 10^{-1} - 10^1$ kg/cm², and a high optical activity. Products of copolymerization of unsaturated esters and vinyl monomers have a reticular structure. Products with different optical and mechanical properties can be obtained by changing the number of chemical bonds between the molecules. For this purpose, saturated dicarboxylic acids (e.g. sebacic acid) are introduced besides unsaturated maleic acid, and the number of individual monomers (e.g. styrene) is varied. In contrast to previous papers, the authors investigated polyesters obtained with the use of reduced amounts of maleic acid

Card 1/4

S/049/60/000/03/001/019
E131/E691

New Principles of Seismic Zoning Derived for Central Tyan'-Shan. II

As an example, the probability $p \leq 0.001$ of occurrence of earthquakes (once or less in 1000 years) is suitable for the erection of less durable structures and $p \leq 0.0001$ (once or less in 10000 years) for long-lasting structures. Determination of such a probability can be based on the above zoning charts and the nomogram given in Fig 6. Charts showing the regions of various probabilities of the occurrence of earthquakes, calculated for Central Tyan'-Shan, are given in Figs 7 and 8. There are 8 figures and 19 references, 17 of which are Soviet and 2 English.

ASSOCIATION: Akademiya nauk SSSR, institut fiziki zemli (Academy of Sciences USSR,
Institute of Physics of the Earth)

SUBMITTED: July 9, 1959

Card 3/3

S/049/60/000/03/001/019
E131/E691

AUTHORS: Gzovsky, M.V., Krasnikov, V.N., Nersisov, I.L. and Reysner, G.I.

TITLE: New Principles of Seismic Zoning Derived for Central Tyan'-Shan. II

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, Nr 3, pp 353-370 (USSR)

ABSTRACT: This is a continuation of work published in this journal, Nr 2, 1960. The investigation is based on the seismic zoning chart of the USSR (Ref 13). Only earthquakes of magnitude 9, corresponding to the energy $E = 10^{15} J$, were considered. The purpose of the investigations was to establish those areas considered to be the safest from the point of view of engineering construction. The method was based on the rate of tectonic movements as described by Gzovskiy et al. (Ref 5). The map shown in Fig 1 was compiled on the basis of the results thus obtained. The method of seismic prognosis consisted of three separate stages:

- 1) The territory was divided according to the gradients of tectonic movements.
- 2) The zones thus determined were classified according to the magnitude of the above rate.

Card 1/3

Modelling of tectonic processes

S/169/62/000/006/010/093
D228/D304

stresses. A similarity condition, illustrated by numerous graphs, is derived mathematically. The question of the extrapolation of laboratory data to notions about extremely long geologic processes, lasting for thousands and even millions of years, is considered. Conditions of similarity are deduced for the processes of plastic and elastic deformation and rupture formation, both statistical and inertial forces being thereby taken into account. The coefficients of viscosity are considered as functions of the temperature, the manifold pressure, and the tangential stress intensity, the coefficients of durability being regarded as time functions; the shearing strengths depend on the normal stresses. Besides the general conditions of similarity, allowance was also made in a specific model for the boundary and the initial conditions. The practical feasibility of modelling is demonstrated. In addition to this a comparison is given for the mechanical properties of rocks and equivalent materials. The optical method of studying stresses in models is also examined. Examples are quoted for the use of models in solving geological and geophysical problems: 1) the formation mechanism for longitudinal flexure and lamination folds in the

Card 2/3

S/169/62/000/006/010/093
B228/D304

AUTHOR: Gzovskiy, M. V.

TITLE: Modelling of tectonic processes

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 6, 1962, 9-10, abstract 6A58 (V sb. Probl. tektonofiziki, M., Gosgeoltekhizdat, 1960, 315-344)

TEXT: The modelling of tectonic processes is based on the principles of: 1) the similarity of the models of natural objects; 2) the choice (the selectivity) of natural processes; 3) the separate study of different factors (of the separation) on models; 4) successive approaches (the approximation) to a natural object; 5) the statistical substantiation of deductions about the results of model tests. Proof is given for the possibility of modelling tectonic processes -- the formation of folds, boudinage ruptures, and other macroscopic manifestations of crustal deformation and disintegration. Conditions of similarity are derived from differential or integral equations, describing the fields of tectonic

Card 1/3

S/169/62/000/002/013/072
D228/D301

Physical theory of ...

0.001 of the shear modulus of rocks. Hence elastic elongations and elastic shears in rocks are always less than 1% and 10^{-6} respectively. The author proposes a complex physical theory for tectonic fracture formation which contains 6 basic principles. 1) In each material two types of rupture -- tearing and shearing -- and their two corresponding strengths are possible. In each specific case rupture is determined by the character of the strain state and by the correlation between the material's tensile and shearing strengths. 2) The tenacity values do not remain constant but change in relation to the duration of the action, the manifold compression and the temperature. This principle is corroborated by numerous experiments and theoretical research. 3) The strengths of rocks may vary widely depending on their lithologic and petrographic peculiarities. 4) When studying the process of fracture formation it is necessary to take into account the influence of the selfemerging rupture surfaces on the strained state of their surrounding areas. In some areas a weakening of the stresses occurs, but in others they are strengthened. 5) The processes of rock rupture develop over a long period of time irregularly, together with plastic and

Card 2/3

Card 3/3

S/169/62/000/002/013/012
D228/D301

AUTHOR: Gzovskiy, M. V.

TITLE: Physical theory of tectonic fracture formation

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1962, 10-11,
abstract 2A68 (V sb. Probl. tektonofiziki, M., Gosgeol
tekhizdat, 1960, 78-96)

TEXT: The notion about the strain ellipsoid finds a strict tectonic basis in the geometric consideration of any homogeneous deformation. The strain ellipsoid can, therefore, be used to describe complete homogeneous deformation and also its plastic and elastic components. The method proposed by Becker for comparing fissures with the strain ellipsoid does not always give accurate results. In the study of fissures and large tectonic fractures the author proposes the use of the complex of contemporary notions about the strengths of materials. It is noted that the nominal momentary tensile strengths of rocks is about 0.0001 of the modulus of elasticity, and that the nominal momentary shearing strengths are about

Card 1/3

Tectonic physics...

S/519/60/000/008/005/031
D051/D113

devoted to recommendations for the compilation of tectonic maps. The principles and methods of compiling standard tectonic maps are being developed by V.N. Krestnikov and G.I. Reysner using the Garmskiy rayon and other sections of Central Asia as examples. Soviet scientists V.V. Belousov, G.P. Gorshkov, A.V. Goryachev, I.Ye. Gubin, I.V. Kirillova, V.N. Krestnikov, B.A. Petrushevskiy, I.A. Rezanov, and A.A. Sorskiy are mentioned for their efforts in developing seismotectonic maps at the Institut fiziki zemli AN USSR (Institute of Physics of the Earth, AS USSR), I.M. Kuznetsova and T.A. Tikhomirova - for having calculated, together with the author, certain geophysical coefficients belonging to the $\Pi_{\Sigma \text{max}}$ formula. There is 1 figure. ✓

ASSOCIATION: Institut fiziki zemli AN SSSR (Institute of Physics of the Earth of the AS USSR)

Card 4/4

S/519/60/000/008/005/031
D051/D113

Tectonic physics...

times (m) the number of faults will decrease when their length is increased r times:

$$\lg m = 3 \nu \lg r; \quad \nu = -\frac{\lg m}{3 \lg r} \quad (3)$$

The author further derived the formula

$$\lg l = \frac{1}{3} (\lg U_S - \lg L), \quad (6)$$

where L is the coefficient of proportionality between the cube of the length of faults l and the energy of earthquakes U_S caused by them. It shows that

for sections with uniform conditions for earthquakes, the logarithm of the length of faults causing the shocks is a linear function of the logarithm of the earthquake energy, if L can be determined for some earthquakes. The author also shows this dependence diagrammatically and proves that, on the basis of seismic data, the empirically established curve of recurrence and coefficient L permit the size of faults and the characteristics of their historical development to be evaluated. The remainder of the article is

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S/519/60/000/008/005/031
D051/D113

Tectonic physics...

of micro-earthquakes; (3) the location level of the rectilinear section of the curve, fixed by the recurrence of earthquakes of any definite energy (N_1). The author considers that seismotectonic maps should basically show zones with different U_{Smax} of earthquakes with a definite focus depth. Within the zones, sections characterized by seismostatistical data and sections established as a result of extrapolation and interpolation according to geological features should be distinguished. The recurrence of earthquakes N_1 must represent the second (superposed) sign. For U_{Smax} , the

author developed a formula which contains quantities (coefficient of proportionality between earthquake center volume and cube of fault extension, velocity gradient of tectonic movements, coefficients of viscosity and liberated energies, etc.) with peak values in each section, the total number of peak values determining the upper limit of earthquake energy. For some sections, this limit is established seismostatistically, and for others, in which seismostatistical data are interpolated or extrapolated, the upper limit can remain unaltered or vary depending on constancy or change in the values of the quantities of the formula. The angular coefficient γ of the rectilinear part of the curve of recurrence permits calculating how many

Card 2/4

S/519/60/000/008/005/031
D051/D113

AUTHOR: Gzovskiy, M.V.

TITLE: Tectonic physics and seismic zoning

SOURCE: Akademiya nauk SSSR. Soviet po seysmologii. Byulleten', no.8,
Moscow, 1960. Voprosy seysmicheskogo rayonirovaniya, 67-72

TEXT: The author discusses the character and compilation of seismotectonic maps, and shows how the parameters essential for compiling these maps can be determined. In the author's opinion, seismotectonic maps must separately define zones of present and possible future earthquakes differing in depth, energy, and recurrence. The total amount of seismostatistical data for each point or uniform zone can be most fully rendered by the main parameters of the logarithmic curve of recurrence of earthquakes of different energy. The main parameters of these curves, which were compiled by Yu.V. Riznichenko, I.L. Nersesov, and V.I. Bune for a number of Central Asian districts, are as follows: (1) the upper limit of earthquake energy (U_{Smax}); (2) the angular coefficient γ of the rectilinear section of the curve in the area

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Methods of Detailed Seismic Research

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Methods of Detailed Seismic Research

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foci, detailed methods for determining the structure of the earth's crust, some results of these determinations, methods of determining seismic energy on the basis of a series of criteria, analysis of dominant frequencies, the use of frequency-selective apparatus, a general description and analysis of seismic conditions in the Garm and Stalinabad areas, the geological structure of the Garm region and the history of its development, and a comparison of the spatial distribution of seismicity and the geological and tectonic structure of the area. The Foreword mentions Academician G. A. Gamburtsev [deceased] who laid the foundations for this work when he was director of the IKSE. The individual chapters of the book were written by: Introduction and Chapter 1 -- I. L. Nersesov and Yu. V. Riznichenko; Chapter 2 -- I. L. Nersesov; Chapter 3 -- I. L. Nersesov and T. G. Rautian; Chapter 4 -- T. G. Rautian; Chapter 5 -- K. K. Zapol'skiy and V. I. Khalturin; Chapter 6 -- V. I. Keylis-Borok, L. N. Malinovskaya, G. I. Pavlova, and V. I. Khalturin; Chapter 7 -- V. I. Bune, I. L. Nersesov and Yu. V. Riznichenko; Chapter 8 -- M. V. Gzovskiy, V. N. Krestnikov, and G. I. Reysner; Chapter 9 -- V. I. Bune, M. V. Gzovskiy and I. L. Nersesov. There are 272 references: 185 Soviet, 73 English, and 14 German.

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PHASE I BOOK EXPLOITATION

SOV/5096

Bune, V. I., M. V. Gzorskiy, K. K. Zapol'skiy, V. I. Keylis-Borok,
V. N. Krestnikov, L. N. Malinovskaya, I. L. Nersesov, G. I. Pavlova,
T. G. Pautian, G. I. Reysner, Yu. V. Rizmichenko, and V. I. Khahturin

Metody detal'nogo izucheniya seysmichnosti (Methods of Detailed Seismic Research)
Moscow, Izd-vo AN SSSR, 1960. 327 p. No. of copies printed not given.
(Series: Akademiya nauk SSSR. Institut fiziki zemli. Trudy, vyp. 9 [176])

Resp. Ed.: Yu. V. Rizmichenko, Corresponding Member AS USSR; Ed. of Publishing
House: S. I. Masarskiy, Tech. Ed.: O. G. Ul'yanova

PURPOSE: This book is intended for geophysicists, particularly seismologists.

COVERAGE: The book summarizes the principal results of the work of the TKSE
Instituta fiziki zemli AN SSSR (Tadzhik Complex Seismological Expedition
of the Institute of Physics of the Earth of the AS USSR) and the Institut
seysmologii AN Tadzhikskoy SSR (Institute of Seismology of the AS Tadzhik
SSR) during the period 1955-1957. Among the topics discussed are: seismic
apparatus used, new methods for determining the coordinates of earthquake

Card 1/16

BELOUSOV, V.V., red.; GZOVSKIY, M.V., kand.geol.-miner.nauk, red.;
KOLOSHINA, T.V., red.izd-va; GUROVA, O.A., tekhn.red.

[Tectonophysics; transactions of the All-Union Conference on
Tectonophysics] Problemy tektonofiziki; trudy Pervogo Vse-
soiuznogo tektonofizicheskogo soveshchaniia. Pod red. V.V.
Belousova i M.V.Gzovskogo. Moskva, Gos.nauchno-tekhn.izd-vo
lit-ry po geol. i okhrane neдр, 1960. 363 p.

(MIRA 14:3)

1. Vsesoyuznoye tektonofizicheskoye soveshchaniye. 1st, Moscow,
1957. 2. Chlen-korrespondent AN SSSR (for Belousov).
(Geology, Structural) (Geophysics)

PLATE I BOOK EXPLOSION 807/4042

Engineering, Silverdale

Polystyrene-optically active isotacticity approximately; study conference all
 2-22 February 1968 and (Optical Polarization Method for Stress Analysis;
 Transactions of the Conference of February 19-21, 1968). [Leningrad] Izdat-vo
 Leningradskogo univ., 1960. 151 p. Extra slip inserted. 2,400 copies printed.

Reep, M.I. S.P. Shchegolev; Ed. Ye. V. Shchegolev; Tech. Ed.: S.D. Vozolazkin;
 Editorial Board: S.G. Gerasimov, L.M. Kabanov, V.M. Krasov, T.O. Krasovskaya,
 M.I. Krasovskiy, V.M. Prokhorov, M.S. Potemkin, and Ye. V. Shchegolev.

REMARKS: This collection of 35 articles is intended for scientists and engineers
 concerned with experimental stress analysis of machine parts and structural
 components.

CONTENTS: The collection contains reports presented at the conference on optical
 polarization methods in stress analysis held February 19-21, 1968, in
 Leningrad and attended by 108 delegates including representatives of the Republics
 of the USSR, the Polish People's Republic, the German Democratic Republic,
 and the Republic of Czechoslovakia. The reports discuss general theoretical
 problems and new methods of investigation and describe apparatus and materials
 used in the optical method. Solutions of specific two-dimensional and three-
 dimensional problems occurring in shipbuilding, aircraft design, engine com-
 struction, in various branches of heavy and precision machine design, in building,
 metallurgy, hydraulic structures, railroad transport, in structural mechanics,
 geodynamics, in the control of stresses in products of the glass and electronic
 industry, etc., are given. Solution of the three-dimensional problem by means
 of the method of photoelasticity is introduced and the use of this method for
 the solution of problems associated with plasticity, creep, dynamic hydro-
 dynamics, etc., is demonstrated. Reports previously published elsewhere are
 printed here in abbreviated form. No preface or introduction is included. References
 are found at the end of 17 of the reports.

Optical Polarization Method (Cont.)

807/4042

33. Shchegolev, M.P., and Ye. V. Shchegolev. On the Use of Silver
 Chloride for Studying Plastic Deformation Processes by Means
 of the Optical Polarization Method. 268
34. Shchegolev, M.P. Optical Method for Investigating Neutralized States
 of Stress in Film-Quenched Polycrystals. 272
35. Kozlov, V.Ye. Modeling General Cases of Plastic Deformation of
 Metals in Polycrystalline Silver Chloride. 280
36. Kozlovskiy, A.G. Plastic Equilibration of an Anisotropic Plastic
 with a General Plastic Core. 284

VIII. INVESTIGATION OF MOTION AND GEOMETRICAL PROBLEMS

37. Gerasimov, S.G., D.M. Gerasimov, and I.N. Krasovskiy. Use of the
 Optical Polarization Method in the Simulation of Geometrical Processes. 290
38. Krasovskiy, V.P. Use of the Optical Method for Investigating Stress
 Distribution Near Film Experiments. 304

Card 8/12

Генерал М. К.

66. M. S. Gerasimov, D. K. Mikhlin, L. G. Zolotarev, (Leningrad). On a method of solving problems of the bending theory of elastic bodies with the use of electronic digital computers.
67. G. M. Gerasimov, L. G. Zolotarev, (Leningrad). Solution of boundary problems of hydrodynamics of viscous and viscoplastic fluids. As a problem in the elastic-plastic regime.
71. A. I. Golubev, (Moscow). An approximate stability analysis of a flow of compressible plastic media.
72. G. P. Gerasimov, (Leningrad). On a problem of elastoplastic stability of an elastoplastic body.
73. I. G. Gerasimov, (Moscow). A dynamic problem for a conical shell.
74. A. I. Gerasimov, (Moscow). Viscoplasticity — a new domain of application of the theory of hydrological problems.
75. M. S. Gerasimov, D. K. Mikhlin, (Moscow). Stabilizing of processes of plastic deformation and rupture of solids with great velocity.
76. A. I. Gerasimov, (Moscow). Development of a theory of processes in fluids with the use of the method of continuous mechanics.
77. I. G. Golubev, (Moscow). Some generalizations of the basic equations of viscoplasticity.
78. A. I. Golubev, (Moscow). The propagation of longitudinal waves in a viscoplastic rod.
79. A. I. Gerasimov, L. G. Zolotarev, (Leningrad). Determination and experimental proof of the region of the locus of the stabilized plastic state.
80. A. I. Gerasimov, (Moscow). A generalized theory of plasticity.
81. A. I. Gerasimov, (Moscow). The theory of finite deformations of elastoplastic plastic media.
82. A. I. Gerasimov, B. A. Khokhlov, (Moscow). A general theory of theory of shells.
83. A. I. Gerasimov, (Moscow). Development of the theory of thin elastic shells.
84. A. I. Gerasimov, (Moscow). Approximate interpretation of the requirements of the theory of thin elastic shells.
85. M. S. Gerasimov-Danilov, (Moscow). Determination of the relative cold pressure in a bent rod with plasticity with allowance for the presence of a rigid core.
86. A. I. Gerasimov, (Leningrad). On secondary effects in torsion and bending of heavy prismatic bars.
87. A. I. Gerasimov, (Leningrad). On plasticity forces and viscoplasticity in shear-deformed and under strained conditions.
88. O. A. Gerasimov, G. M. Mikhlin, (Leningrad). Contribution to the theory of elastoplastic deformational conditions of variables.
89. A. I. Gerasimov, (Moscow). On elastoplastic deformation of nonhomogeneous plates and disks.
90. A. I. Gerasimov, (Moscow). Explication of anisotropic shells of revolution for large displacements and strains.
91. G. P. Gerasimov, (Leningrad). Creep design of thin orthotropic nonuniform shells.
92. A. I. Gerasimov, (Moscow). The general equations of soil dynamics and some particular solutions.
93. D. V. Gerasimov, (Leningrad). Forming of an elastic layer.
94. A. I. Gerasimov, (Leningrad). Stress concentration is notched bodies of thin metal plates under deformation.
95. V. A. Gerasimov, V. A. Zolotarev, (Leningrad). The theory of the formation of a plastic shell.
96. A. I. Gerasimov, (Leningrad). Effect of stress intensity in the plasticity limit.
97. A. I. Gerasimov, (Leningrad). The bending of a hollow prismatic rod with a precracked hole.
98. A. I. Gerasimov, (Moscow). The limit equilibrium of an elastoplastic plate that is compressed between rough field plates.
99. A. I. Gerasimov, (Leningrad). A body mass multiprocessed region subjected to a compressive body force and nonuniform heating.
100. A. I. Gerasimov, (Leningrad). The equilibrium of a hollow plate with a precracked hole under the action of a body force and a surface stress.
101. A. I. Gerasimov, (Leningrad). The theory of the stability of elastoplastic shells.
102. V. A. Gerasimov, P. I. Kuchuk, (Moscow). Bending of orthotropic shells.
103. A. I. Gerasimov, (Leningrad). Bifurcation of elastoplastic shells.

GZOVSKIY, Mikhail Vladimirovich; BELOUSOV, V.V., otv.red.; FEDOT'YEV,
K.M., red.izd-va; MAKUNI, Ye.M., tekhn.red.

[Basic tasks in studying the formation dynamics and tectonics
of the Baydzhansay anticline] Osnovnye voprosy tektonofiziki
i tektonika Baidzhansaiskogo antiklinoria. Moskva, Izd-vo
Akad.nauk SSSR. Pts. 1 and 2. 1959. 254 p. (MIRA 12:7)

1. Rukovoditel' otдела geodinamiki Instituta fiziki Zemli AN
SSSR (for Belousov).
(Kara Tau--Geology, Structural)

SOV/ 49 -58-12-1/17

Comparison between the Tectonics and Seismicity of Garmskiy Rayon of Tadzhik SSR. II.

are necessary for the different tectonic structures or for various depths of the earth crust. Therefore, the investigations in this matter are not yet concluded and the additional information will be presented at some future date. There are 3 tables, 8 figures and 28 references, of which 23 are Soviet, 3 are German (2 translated from Hungarian), and 2 are English.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki Zemli (Academy of Sciences, USSR, Institute of Physics of the Earth)

SUBMITTED: August 4, 1958.

Card 3/3

SOV/ 49-58-12-1/17

Comparison between the Tectonics and Seismicity of Garmskiy Rayon of Tadzhik SSR. II.

seismic activity coincide with the banded structure, for which a mean gradient of tectonic movements in the Quaternary period was high (Figs.5 and 6). Therefore, it can be stated that the velocity of seismic activities increases with an increase of mean tectonic gradient. In order to verify this relation, a method was devised which could be applied to any region having seismic activity of short duration (2 to 3 years), provided weak earthquakes and the measurable gradients of tectonic movements are of recent origin. This method is based on the detailed analysis which showed that the correlation between the frequency of earthquakes (Fig.1) and the tectonic gradient, Fig.6, is maintained in various areas of the Garm region (Table 3, A₇ - frequency). As the above relation was found for one region only, it is possible that some modifications

Card 2/3

SOV/49 -58-12-1/17

AUTHORS: Gzovskiy, M. V., Krestnikov, V. N., Nersesov, I. L.,
Reysner, G. I.

TITLE: Comparison between the Tectonics and Seismicity of Garmskiy
Rayon of Tadzhik SSR. II (Sopostavleniye tektoniki s seys-
michnost'yu Garmskogo rayona Tadzhikskoy SSR. II)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya geofizicheskaya,
1958, Nr 12, pp 1425-1442 and 2 inserts (USSR)

ABSTRACT: It was observed that more than 9000 epicentres of the
energy from 10^4 - 10^{15} j showed activity during 1955 and 1956
in Garmskiy rayon of about 13 500 km² (Figs.2, 3 and 8). The
earthquakes were registered in sufficient detail to give a
complete picture of the seismicity of this region (Fig.1).
This region, therefore, was chosen for the investigation on
the relationship between seismicity and tectonic structure.
A quantitative method of investigation was chosen so that the
analysis of tectonics could be utilised in the determination
of seismicity. The mean gradient of the velocity of vertical
tectonic movements of the earth crust was calculated from
Eqs.(1) and (2). Some results are shown in Figs.4, 5 and 7
and Tables 1 and 2. The cross-sections I-I and II-II
employed in the calculations can be seen in Fig.6. The com-
parison showed that in Garmskiy rayon the areas of higher

Card 1/3

SOV/49-72-2-3/17

Tectonic and Seismic Conditions of Garmsky Rayon in Tajik SSR

There are 8 figures and 28 references, 25 of which are Soviet and 3 German.

ASSOCIATION: Akademiya nauk SSSR Institut fiziki Zemli
(Ac.Sc.USSR, Institute of Terrestrial Physics)

SUBMITTED: August 28, 1957

1. Geology--USSR

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NOV/49-72-8-3/17

Tectonic and Seismic Conditions of Garmskiy Rayon in Tajik SSR

by both the strong, vertical forces and the weaker, horizontal shearing stresses, thus being subjected to a deformation which was of plastic character. This can be seen on the surfaces where the Palaeozoic is found close to the Mesozoic rocks. Where this type of deformation occurred with great speed, the faults were formed. It could be said that all the blocks of Palaeozoic origin behaved not as rigid bodies but as a plastic medium with some parts of the Earth core being somewhat of greater viscosity in relation to the Mesozoic and the Tertiary sedimentations.

The general character of the mechanism of formation of the alpine structure of the Garmskiy rayon could be also applied to the regions of Tajik depression (Figure 6). It can be assumed that the developments in the Garmskiy rayon took place during the second half of the Quaternary period and lasted about 120-230 thousand years which can be compared with 600 thousand years of the total time of the Quaternary period.

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Tectonic and Seismic Conditions of Garmaskiy Rayon in Tajik SSR

anticline, a series of faults developed, the depth of which is characterised by the long and narrow grabens filled with small rocks (Figure 1). These grabens could not be independent structures as those in other areas (Figure 7). It can be assumed that they are the remnants of the changed direction of the movements of neighbouring regions. Originally, a rise of one of the regions caused the formation of a fault. The faults, in turn, caused a break in the general movement of the area. Thus, at the boundary of two neighbouring tectonic regions, the faults can be found, usually at the narrow ridges (Figures 1 and 3). The formation of new faults in relation to the dislocations are explained by the faults being not vertical. They are mostly inclined towards its lifted side.

A noticeable feature is a very well-maintained range of the young faults and folds of Neogen-Quaternary origin. Their large number signifies a horizontally directed course of the tectonic regions. Also, it can be assumed from their general orientation that the shear effect was directed along the Meridian.

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The Palaeozoic foundation of the Garmaskiy rayon was effected

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Tectonic and Seismic Conditions of Garmskiy Rayon in Tajik SSR

Some of the data given in the diagrams were interpolated from the places situated farther away (Figure 4) but it was assumed that the possibility of error could not affect the general character of the graphs.

A clear difference in the tectonic movements between the geosyncline and the plateau areas can be clearly distinguished in Figures 5 and 6.

The present structure (Figure 7) of the Garmskiy rayon and NE part of the Tajik depression is characterised by several divisions of which the most important is the alpine district of Pamir and Darvaz.

A main feature of the structure of the Garmskiy rayon is a vertical displacement of the isolated blocks separated by the tectonic faults which break through the Earth's core. The traces of these faults can be found even in the Palaeozoic base. A change occurred in their direction in comparison with that in the Neogen and Quaternary periods at the time when an inversion took place of the pre-Pamir depression and when the region of the Kabudkrin rose above the surrounding areas.

Card2/5 At the same period in the north-west of the Kabudkrin

SOV/49-58-8-3/17

AUTHORS: Gzovskiy, M.V., Krestnikov, V.N., Nersisov, I.L. and
Reysner, G.I.

TITLE: Tectonic and Seismic Conditions of Garmskiy Rayon in
Tajik SSR (Sopostavleniye tektoniki i seysmennostiyu
Garm'skogo rayona Tadzhikskoy SSR.1) Part 1.

PERIODICAL: Izvestiya Akad mii Nauk SSSR, Seriya Geofizicheskaya,
1958, Nr 8, pp 959 - 976 + 2 plates (USSR)

ABSTRACT: A junction of the vast Asian mountain chains, Himalaya-
Pamir geosyndine and the Tien-Shan Range with the Tajik
depression represents territory of very active seismic
activities. Particularly, the Garm'skiy rayon is known for
its highest concentration of the epicentres (Figures 1
and 5).
The history of its alpine, tectonic movements and the
formation of its geological structure can be represented
in the form of diagrams. The structural changes which were
undergone during the periods of the Mesozoic and the
Kainozoic in the eastern part of the region along the
line NW-SE are shown in Figure 2, while Figure 3
represents the same cross-section running through Garm-
skiy rayon.

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GZOVSKIY, M.V.

Modeling method in tectonophysics [with summary in English]. Sov.
geol. 1 no.4:53-72 Ap '58. (MIRA 11:6)

1. Institut fiziki Zemli AN SSSR.
(Geological modeling)

GZOVSKIY, M.V., kandidat geologo-mineralogicheskikh nauk.

Problems in tectonophysics. Priroda 46 no.6:49-52 de 197.

(MLRA 10:7)

1. Institut fiziki Zemli Akademii nauk SSSR (Moskva).
(Earth--Surface) (Geophysics)

GZOVSKIY, A.V.

GZOVSKIY, M.V.

The development of tectonophysics; conference in the Institute of
Earth Physics. Vest.AN SSSR 27 no.4:114-116 Ap '57. (MLRA 10:5)
(Geology, Structural)

Conference on tectonophysics. (Cont.)

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to organize a permanent tectono-physical seminary and
the organization of such a seminary was entrusted to the
Geodynamics Sections of the Institute of Physics of the
Earth, Ac.Sc.

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ores the mechanism and history of deformation of the investigated parts of the Earth's crust should be considered as one of the basic scientifically justified methods.

The problem of cleavage was extensively discussed by various authors. A. V. Pek, Novochoerkassk Polytechnical Institute (Novochoerkasskiy Politekhnikheskiy Institut) dealt with the method of microscopic investigation of the rock structure for elucidating the character of the investigated deformations (petrotectonic) and emphasized the practical importance of this method from the point of view of deciphering the structure of ore deposits in determining the displacements along large tectonic fractures and also in other cases. The various problems of the physical and mechanical study of tectonic deformation of rocks which are important from the point of view of engineering geology were considered by I. V. Popov, Laboratory of Hydrogeological Problems (Laboratoriya Gidrogeologicheskikh Problem AN SSSR). The problems of tectonophysical investigations relating to search for oil and gas with analysis of concrete examples were dealt with by P. P. Ivanchuk, All Union Gas Research Institute (Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Gaza). It was recommended

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Conference on tectonophysics. (Cont.)

outlined those practical problems, for the solution of which it is advisable to study the mechanism of formation of the structure of deposits of gold ores.

V. M. Kreyter, All Union Research Institute of Mineral Raw Materials (Vsesoyuznyy Institut Mineral'nogo Syr'ya) formulated the problem of the influence of pressure from all sides on the character of the tectonic fractures and on the crack distribution.

I. Z. Korin (Institute of Geology of Ore Deposits) demonstrated material indicating that the distribution of hypergenic deposits of iron, nickel and cobalt in the weathered crust depends to a large extent on the direction, density and character of the crack distribution and of the larger fractures in the basic rocks.

A. A. Belitskiy, Tomsk Polytechnical Institute (Tomskiy Politechnicheskiy Institut) characterizes the complicated crack structure of coal bearing deposits on the example of the Kuzbas.

G. V. Charushina, East Siberian Branch of the Ac.Sc.
Card 15/18 (Vostochno-Sibirskiy Filial AN SSSR) analysed the method of studying fractures in shallow sedimentary rocks on the sample of the South Siberian platform, mentioning that in

... justification of the interpretation of fractures is inadequate and in some cases doubtful; in prospecting for

Conference on tectonophysics. (Cont.)

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folds and fractures which developed in recent periods, on the example of the ridges of Karatau in Southern Kazakhstan.

V. I. Keylis-Borok (Institute of Physics of the Earth) described the method which he developed for determining the elements of location of fractures in the depths which bring about earthquakes and elucidated the direction of displacement of their extremities. The resolution emphasized the importance of the extensive study of the deformation of the Earth's crust within individual large regions carried out by the Geodynamics Section of the Institute of Physics of the Earth. A number of papers were devoted to methods and tasks of detailed investigation of tectonic fractures.

M. V. Gzovskiy proved the inconsistency of the hypothesis of G. Becker which is widely used by geologists for interpreting the fracture tectonics; he recommended use of a complex of modern conceptions on the strength of materials which would permit to re-establish the basic features of the tectonic stress field acting during the time of formation of the cracks.

Card 13/18 I. P. Kushnarev and L. I. Lukin, Institute of Geology of Ore Deposits (Institut Geologii Mestorozhdeniy AN SSSR)

Card 14/18 Gold Geological Prospecting Institute (Vsesoyuznyy Nauchno-Issledovatel'skiy Geologo-Razvedochnyy Institut Zolota)

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The mechanism of formation of large structural elements of the Earth's crust was dealt with by the following authors:

V. V. Belousov (Institute of Physics of the Earth) mentioned the variety of reasons of fold formation and the necessity that in each concrete case the local causes of such a phenomenon should be investigated. He considered fold formation as a reaction of layered plastic strata to the differential vertical movements of the underlying blocks of the Earth's crust.

G. D. Azhgirey, Moscow State University (Moskovskiy Gosudarstvennyy Universitet) drew attention to the necessity of using extensively geological methods for detailed study of the long term history of formation of concrete structural elements of the Earth's crust.

P. N. Kropotkina, Institute of Geological Sciences (Institut Geologicheskikh Nauk AN SSSR) dealt with compression and stretching in the Earth's crust and possibilities of studying these phenomena.

N. I. Nikolayev, Moscow Geological-Prospecting Institute (Moskovskiy Geologo-Razvedochnyy Institut) considered the methods of studying the mechanism of formation of those

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The following physicists dealt with the problem of modelling the tectonic phenomena: L. M. Kachanov, Ye. I. Edel'shteyn, G. V. Vinogradov, G. N. Kurznetsov, M. P. Volarovich, A. V. Stepanov and also the geologists F. I. Vol'fson, V. A. Aprodov, N. I. Borodayevskiy, Yu. S. Shikhin. It was mentioned that the fundamental difficulties in developing modelling techniques and defining more accurately the conditions of analogy are due to the inadequate knowledge of the physical and mechanical properties of rocks and that much attention should be paid in the near future to improving the theory and methods of modelling. The geologists mentioned that from the practical point of view the experiments with non-uniform models of sections of the ore fields are of greatest interest. In the resolution of the conference it was mentioned that it is possible in principle to simulate on models tectonic phenomena and that the work carried out in this field by the Geodynamics Section of the Institute of Physics of the Earth is promising.

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(Note: Up to this point this is a complete translation except for the initial introductory paragraph).

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in benzyl alcohol and it was proved that this plastic, optically active material is suitable for modelling tectonic processes. New instruments were demonstrated which were recommended for investigating physical properties of the materials of the models.

N. V. Mikhaylov, Moscow Scientific Research Institute on Building (Moskovskiy Nauchno-Issledovatel'skiy Institut Po Stroitel'stvy) devoted his paper to investigating the physical and mechanical properties of those materials which are equivalent to rocks from the point of view of modelling tectonic phenomena. For materials with crystallisation and strong, "high structured" coagulation structures, he recommended determining of the curves of the kinetics of increase of the deformation with time when stressed with a constant tangential stress and the drop in deformation after relieving the stress. Materials with low strength coagulation structures should be studied by recording the changes in tangential stress for a given constant deformation speed of the specimen. He described a new instrument, the electron-selsyn elastoviscosimeter which he designed and some new methods of determining the coefficient of viscosity of the material.

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Utilisation of these equations corresponds most closely to the results of laboratory investigations of rocks. As a result of special investigations by means of new instruments it was found that a number of materials possess the physico-mechanical properties which should exist on the basis of analogy conditions in the models. Thus, it was proved that it is not only theoretically conceivable but also practically possible to simulate on models tectonic phenomena. A elastically deforming model from a concentrated solution of ethyl cellulose in benzyl alcohol was demonstrated in which the stress distribution was determined by optical methods. Examples were given of applying the method of simulation on models for verifying theoretically derived physical conditions of folds of longitudinal bending and longitudinal flattening and for elucidating the possible shapes, volumes and relative activities of seismic tremors connected with rises of the Earth's crust due to various causes.

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D. N. Osokina (Institute of Physics of the Earth) gave results of work carried out by her and V. P. Pavlov, G. V. Vinogradov and M. V. Gzovskiy; a detailed characteristic was given of the physico-mechanical and optical properties of the concentrated solutions of ethyl cellulose

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L. S. Eygenson, Moscow Power Institute (Moskovskiy Energeticheskii Institut), dealt with the general principles of simulating, on models, of physical processes. For materialising similarity of phenomena in models and in nature it is necessary and sufficient to fulfil conditions which ensure identity for the model and for the natural object of the dimensionless solution of dimensionless equations describing the studied process. The author emphasized that this method can be successfully applied also in cases in which it is not possible to comply with all the theoretically derived conditions of analogy but only with the main conditions of analogy.

M. V. Gzovskiy (Institute of Physics of the Earth, Ac.Sc., USSR, gave a theoretical justification of new methods and certain results of simulating on models of tectonic processes. On the basis of conceptions elucidated in previous papers, the conditions of analogy were determined by analysing those equations which are widely used in physico-chemical mechanics which describe the development of deformations (taking into consideration the dependence of the viscosity on the stresses) and fracture (taking into consideration its dependence on the duration of the action of the stresses).

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Conference on tectonophysics. (Cont.)

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was drawn to the development with time of the process of disruption and to transition from type III to type II and type I disruptions. He considered it necessary to distinguish two stages of disruption, one caused by evolution over a long period and the other of the spontaneous avalanche type which leads to the final forming of the fracture. According to the author, change-over to the second stage is determined not only by the properties of the material but also by the dimensions and the shape of the body, the stress state in the non-disrupted part of its cross section and also the inertia, potential energy of the elastic deformation and the elasticity (rigidity) of those bodies which transmit the forces to the body being fractured. All these factors influence the magnitude of the stresses acting in the field of disruption during the second stage. The author proposed that it should also be investigated whether the strength and the nature of earthquakes do not depend on the density of the potential energy of elastic deformation in the hypocentre of the tremor and whether the elastic properties of the rocks and the dimensions of the tremor do not effect the amount of earthquake energy.

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Conference on tectonophysics. (Cont.)

since this permits determination of all the fundamental characteristics of deformation and strength properties of the material.

Ya. B. Fridman, Moscow Engineering-Physical Institute (Moskovskiy Inzhenerno-Fizicheskiy Institut), emphasized the importance of clear determination of the local nature of disruption of rocks. He proposed classification as follows: disruption of the III-type (sub-microscopic fractures of a length of several hundred times the parameters of the crystal lattice, i.e. tenths of a micron; type II disruptions (microscopic disruptions of tenths and hundredths of a mm, i.e. commensurate with the dimensions of the grains composing the polycrystalline material, particularly the rock); type I disruptions (macroscopic disruptions, the length of which is larger by several orders of magnitude than the dimensions of the structural elements of the material, the rock grains, and can be large enough for disrupting completely the investigated specimen or body. It was pointed out that large tectonic fractures of a size of several orders of magnitude larger than the thickness of the individual crack layers of uniform composition should be considered as a disruption of a special type. Attention

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development of tectonophysics, it is important to develop methods of studying the plastic and strength properties of non-uniform layers of rocks under their natural conditions. New conceptions on the general relations of deformation and disruption of various solid and liquid bodies which also extend to rocks were reported in the papers of P. A. Rebinder and Ya. B. Fridman.

P. A. Rebinder, Institute of Physical Chemistry, Ac.Sc., USSR (Institut Fizicheskoy Khimii AN SSSR) dealt with the general dependence of the toughness (viscosity) of materials on the magnitude of their tangential stresses and on the types of the secondary structures of various bodies determining the deformation and the strength properties of the medium. He directed attention to the existence of four types of secondary structures in rocks, namely: dense crystalline (eruptive) rocks; loose crystalline rocks and particularly sulphates, carbonates and chlorides of chemical origin; condensation rocks (opal, cements of sedimentary rocks); coagulations of various densities (clay rocks and soils). The importance was emphasized of measurements of the kinetics of the development of deformation and disruption of rocks as a result of long duration effects of constant stresses,

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the dependence of the physico-mechanical properties of rocks on their lithological and petrographic properties. He has shown that the properties of the rock are influenced appreciably by their porosity, grain size, mineralogical composition and the character and the composition of the binding material. In the two papers a number of problems were discussed relating to the technique and tasks of further investigations. These were also dealt with in papers concerning other subjects and in a number of contributions to the discussions (P. A. Rebinder, Ya. B. Fridman, G. N. Kuznetsov, N. V. Mikhaylov, A. V. Stepanov, N. I. Borodayevskiy, I. V. Popov, M. V. Gzovskiy) and at meetings of groups of specialists who were the most interested in developing a given direction of investigations. A general opinion became crystallised on the necessity of paying particular attention to processes of deformation and disruption of rocks during various stress states and temperatures.

A. V. Stepanov, Physico-Technical Institute, Ac.Sc. U.S.S.R. (Fiziko-Tekhnicheskii Institut AN SSSR) reported on the study of the physico-mechanical properties of non-uniform and anisotropic media. It was pointed out that for further

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Conference on tectonophysics. (Cont.)

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engineering geology, analysis of the microstructure of rocks, of solid body physics, of physico-chemical mechanics and of the theory and methods of modelling physical phenomena and tectonic processes. Fifty-five contributions were made in the discussions. Such a detailed evaluation of problems of tectonophysics by a large number of geologists, geophysicists, physicists and physical chemists has never taken place, neither in the U.S.S.R. nor abroad. According to the general opinion of the delegates, the conference was extremely fruitful.

Much attention was paid to the study of the mechanical properties of rocks.

M. P. Volarovich (Institute of Physics of the Earth Ac.Sc., U.S.S.R.) reported on modern methods and results of the study of the physical and mechanical properties of rocks in the case of various pressures from all sides. The dependence of the modulus of elasticity of rocks of the stresses in them was characterized and the results were given of experiments indicating the possibility of disruption of an explosive nature of various sedimentary and eruptive rocks. B. V. Zaleskiy and Yu. A. Rozenov, Institute of Geology of Ore Deposits Ac.Sc. U.S.S.R. (Institut Geologii Metlorozhdeniy Poleznykh Iskopayemykh AN SSSR) devoted his paper to

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Conference on tectonophysics. (Cont.)

49-7-13/14

working in various directions of tectonophysics and neighbouring problems of physics of tectonics. The conference was held at the Institute of Physics of the Earth, Ac.Sc. U.S.S.R. in Moscow between January 29 and February 5, 1957 with the participation of about 496 people representing 121 scientific and executive organizations in Moscow, Leningrad, Kiev, Lvov, Dnepropetrovsk, Voronezh, Novocherkassk, Saratov, Kazan, Krasnodar, Baku, Tbilisi, Yerevan, Tashkent, Alma-Ata, Frunze, Tomsk, Omsk, Irkutsk, Magadan and other towns. The greatest number of people were representatives from the establishments of the Ac.Sc. of the U.S.S.R. and other republics, the Ministry of Geology and Conservation of Mineral Resources (Ministerstvo Geologii i Okhrany Nedr SSSR), the Ministry of Non-Ferrous Metallurgy (Ministerstvo Tsvetnoy Metallurgii SSSR) and the Ministry of Higher Education (Ministerstvo Vysshego Obrazovaniya SSSR). The conference was also attended by specialists from China and Czechoslovakia who were at the time in Moscow. Twenty-nine detailed papers were read by specialists on physico-mechanical properties of rocks, on geological conditions of formation of folds and fractures in the Earth's crust, the structure of ore and coal deposits,

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Gzovskiy, M. V.

49-7-13/14

AUTHOR: Gzovskiy, M. V.

TITLE: Conference on tectonophysics. (Soveshchaniye po tektonofizike)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1957, No.7, pp.959-965 (USSR)

ABSTRACT: On a small scale, tectonophysical investigations have been carried out for a long time in the U.S.A. and France. During the last two decades rapid developments have been made in this field in the U.S.S.R., China and Czechoslovakia. Since there has been no cooperation between the scientific organizations and the individual scientists working in the Soviet Union in the field of tectonophysics, there has also been no adequate coordination and there has been a great divergence both in the programme of investigations and in the interpretation of factual data. The Institute of Physics of the Earth of the Ac.Sc. USSR (Institut Fiziki Zemli AN SSSR) has organised the first All Union conference on tectonophysics, which had the following aims: to formulate more precisely the tasks of the tectonophysical investigations; to elucidate the problems which are of greatest interest from the point of view of applied geology; to outline the most promising methods of tectonophysical investigations; to improve the relations between individual research workers

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Tectono-physical justification of geological seismicity criteria. II. (Cont.)

necessary to determine the contours of the assumed regions of maxima of tangential stresses, to evaluate approximately by using eq.(5) the relative magnitude of the maximum tangential stresses acting inside the maxima zones and to indicate the genetic types and the maximum dimensions of the fractures which develop and can be anticipated in these regions. The seismostatic data should be compared with: the magnitude of the deformation structural elements of the Earth's crust and the tectonic fracture associated with them; the gradients of the average speed of recent tectonic movements of the Earth's crust; the history and direction of the development of structural elements of the Earth's crust; the types and periods of tectonic fractures associated with certain structural elements of the crust which can either be observed on the surface or can be assumed existing at depths. It is necessary to intensify investigations relating to the mechanical properties of rocks and their dependence on pressure from all sides, temperature and duration of stress application. It is necessary to study the mechanism of formation of tectonic fractures and the influence of fractures on the stress state in their neighbourhood for

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49-3-1/16

AUTHOR: Gzovskiy, M.V.

TITLE: Tectono-physical justification of geological seismicity criteria. II. (Tektonofizicheskoye obosnovaniye geologicheskikh kriteriyev seysmichnosti. II)

PERIODICAL: "Izvestiya Akademii Nauk, Seriya Geofizicheskaya" (Bulletin of the Ac.Sc., Geophysics Series), 1957, No.3, pp.273-283 (U.S.S.R.)

ABSTRACT: Tectono-physical investigations relating to the forecasting of earthquakes consist in studying natural deformations and fractures in the Earth's crust and appropriate model studies aimed at elucidating the relations governing the distribution of those stresses which are linked with changes in the structure of the Earth's crust and bring about fractures and earthquakes. The necessity of carrying out such investigations has been expounded by the author in the first part of this paper (same journal, No.2, pp.141-160) in which the physical meaning of geological criteria of seismicity was determined and the importance was pointed out of developing a hypothesis which links the energy and the repetition of earthquakes in time with geological seismicity criteria. In this paper such a hypothesis is presented by the author and is expressed mathematically by

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TITLE:

Tectonophysical explanation of the geological criteria of seismicity. Part I. (Tektonofizicheskoe obosnovanie geologicheskikh kriteriyev seysmichnosti. I).

In regions which have not been adequately studied, it will be advisable to carry out regional geological investigations together with seismo-statistical investigations so as to detect within the shortest possible time regions for which the largest average speed gradients of new and present-day vertical movements of the Earth's crust take place and where earthquakes did already occur; in these regions the existence of increased tangential stresses is most likely and these regions should be considered as the most dangerous from the point of view of seismicity. In regions which have been studied more extensively in the past, it is necessary to carry out tectonophysical field work and investigations on models, with the aim of arriving at a hypothesis on the most probable distribution of the maxima, their internal structure and trend of development.

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AUTHOR: Gzovskiy, M. V.

TITLE: Tectonophysical explanation of the geological criteria of seismicity. Part I. (Tektonofizicheskoe obosnovanie geologicheskikh kriteriyev seysmichnosti. I).

PERIODICAL: Izvestiya Akademii Nauk, Ser. Geofizicheskaya, 1957, No.2, pp. 141-160 (U.S.S.R.)

ABSTRACT: The physics of geological criteria of seismicity are described and their importance is pointed out in complex geological-geophysical forecasting of earthquakes. In this paper the author is concerned only with the tectonophysical point of view of considering the geological criteria of seismicity. He defines as the geological criteria of seismicity of a given region the geological characteristics of the degree of seismic danger characterised by the maximum force of future seismic tremors and their anticipated recurrence as a function of time.

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It is necessary to change over to a more accurate forecasting based on the knowledge of the present state of the depths of the Earth and on the tendency of development of deformations and stresses.

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GZOVSKIY, M. V.

"The Theoretical Basis, New Methods, and Results of Modeling Tectonic Processes," paper presented at the First All-Union Conference on Tectonophysics, Moscow, 29 January through 5 February 1957.

Institute of Physics of the Earth, Academy of Sciences

Sum 1563

GZOVSKIY, M. V.

"On the Characteristics of the Physico-Mechanical and Optical Properties of Concentrated Solutions of Ethyl Cellulose and Benzyl Alcohol," D. N. Osokina in collaboration with V. P. Pavlov, G. V. Vinogradov, and M. V. Gzovskiy (reported on the usefulness of this plastic, optically active material for the modeling of tectonic processes, _

paper presented at the First All-Union Conference on Tectonophysics, Moscow, 29 January through 5 February 1957.

Inst. of Physics of the Earth, Acad. Sci. USSR

GZOVSKIY, M.V.

BALAKINA, L.M.

X(10)

PHASE I BOOK EXPLOITATION

80V/1663

Akademiya nauk SSSR, Komitet po geodesii i geofizike.

Tesley doklady na XI General'noy sessii Mezhdunarodnogo geodeticheskogo i geofizicheskogo soyuzov. Mezhdunarodnaya assotsiatsiya seysmologii i fiziki nedr zemli (Abstracts of Reports Submitted to the XI General Assembly of the International Union of Geodesy and Geophysics. The International Association of Seismology and Physics of the Earth's Interior) Moscow, 1977. 102 p. /Parallel texts in Russian and English/ 1,500 copies printed.

No additional contributors mentioned

PURPOSE: This booklet is intended for geophysicists, especially those specializing in seismology.

COVERAGE: This collection of articles deals with the structure and composition of the Earth and phenomena related thereto. The majority of the articles concern studies of earthquakes and seismic waves. Other articles cover the structure of the Earth's crust and mountain roots; the elastic properties of rocks at high pressures; the piezoelectric effect of rocks and the method of modelling in tectonophysics. The collection also contains articles on the Earth's thermal history, the microseismic method of tracing storms and others.

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